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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/817,292	04/02/2004	Henrik Lund	10444.500-US	2299
25908	7590	10/17/2006	EXAMINER	
NOVOZYMES NORTH AMERICA, INC. 500 FIFTH AVENUE SUITE 1600 NEW YORK, NY 10110			KOSSON, ROSANNE	
			ART UNIT	PAPER NUMBER
			1652	

DATE MAILED: 10/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Advisory Action  
Before the Filing of an Appeal Brief**

Application No.

10/817,292

Applicant(s)

LUND ET AL.

Examiner

Rosanne Kosson

Art Unit

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**--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

THE REPLY FILED on October 2, 2006 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:

- a) ☒ The period for reply expires 6 months from the mailing date of the final rejection.  
b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**NOTICE OF APPEAL**

2. ☒ The Notice of Appeal was filed on 02 October 2006. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

**AMENDMENTS**

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because  
(a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);  
(b) ☐ They raise the issue of new matter (see NOTE below);  
(c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or  
(d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: \_\_\_\_\_. (See 37 CFR 1.116 and 41.33(a)).

4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).  
5. ☐ Applicant's reply has overcome the following rejection(s): \_\_\_\_\_.  
6. ☐ Newly proposed or amended claim(s) \_\_\_\_\_ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).  
7. ☐ For purposes of appeal, the proposed amendment(s): a) ☐ will not be entered, or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.  
The status of the claim(s) is (or will be) as follows:  
Claim(s) allowed: \_\_\_\_\_.  
Claim(s) objected to: \_\_\_\_\_.  
Claim(s) rejected: \_\_\_\_\_.  
Claim(s) withdrawn from consideration: \_\_\_\_\_.

**AFFIDAVIT OR OTHER EVIDENCE**

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).  
9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of a good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).  
10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

**REQUEST FOR RECONSIDERATION/OTHER**

11. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: see below.  
12. ☐ Note the attached Information Disclosure Statement(s). (PTO/SB/08) Paper No(s). \_\_\_\_\_.  
13. ☒ Other: No amendments were filed.

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Regarding the restriction requirement, Applicants have acknowledged that they elected Group II, a method of reducing the cationic demand/amount of anionic trash in paper-making wood pulp, comprising an alkaline treatment step followed by a pectate lyase treatment step, and that the non-elected inventions are not under examination. Applicants should note that in their amendment of March 13, 2006, claim 12 was amended to recite that the wood pulp is treated with two or three enzymes, a xylanase and a pectate lyase, or a xylanase and a pectin lyase, or a xylanase a pectate lyase and a pectinesterase. Thus, claims 12-14 do not read on the elected invention and are therefore withdrawn from prosecution. These claims now correspond to Groups VIII-X only and are pending but withdrawn.

Regarding the rejection of claims 1-11 under 35 USC § 112, second paragraph, Applicants have explained that, although the amount of anionic trash/cationic demand is increased in the first step of the claimed method, this amount is counteracted and decreased in the second step by the action of the enzyme. Accordingly, this rejection is withdrawn.

Regarding the rejection of claims 1-7 and 10 under 35 U.S.C. 102(b) as being anticipated by Tanabe et al., as evidenced by Enzyme Nomenclature, Applicants assert that the claimed invention is not anticipated because Applicants treat fibers only, while Tanabe et al. treat plant tissue containing fibers.

In reply, Applicants state in the specification on p. 3, lines 26-31 that "A pulp (or a papermaking pulp) is an aqueous mixture of fibers of plant origin. The dry matter content (consistency = Dry Solid, w/w) of the pulp may vary within wide limits, and the pulp may contain various other components as is known in the art of pulp and papermaking.

The pulp can be a fresh, so-called virgin pulp, or it can be derived from a recycled source, or it can be a mixture thereof. The pulp may be a wood pulp, a non-wood pulp, a pulp made from waste paper, or any mixture thereof."

Thus, Applicants' pulp is not fibers alone, but a mixture containing fibers and unspecified other components. Tanabe et al. disclose that it is fibers that are treated in their method by an alkaline solution and by pectate lyase (see pp. 63-64). The claim language does not distinguish Applicants' invention over the cited art, and the specification does not disclose any unclaimed distinctions. Therefore, the rejection of record is maintained.

Regarding the rejection of claims 1-7 and 10 under 35 U.S.C. 102(b) as being anticipated by Kobayashi et al., as evidenced by Plants for a Future, Applicants assert that the claimed invention is not anticipated because Applicants treat fibers only, while Kobayashi et al. do not disclose treating a pulp.

In reply, as discussed above, Applicants state in the specification on p. 3, lines 26-31 that "A pulp (or a papermaking pulp) is an aqueous mixture of fibers of plant origin. The dry matter content (consistency = Dry Solid, w/w) of the pulp may vary within wide limits, and the pulp may contain various other components as is known in the art of pulp and papermaking.

The pulp can be a fresh, so-called virgin pulp, or it can be derived from a recycled source, or it can be a mixture thereof. The pulp may be a wood pulp, a non-wood pulp, a pulp made from waste paper, or any mixture thereof."

Thus, Applicants' pulp is not fibers alone, but a mixture containing fibers and unspecified other components. Kobayashi et al. disclose in the Abstract that they screened for strains of bacteria that could digest pectocellulosic fibers. The authors also disclose on p. 30, third full

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paragraph, that they measured the amount of products released by enzymatic digestion of these fibers. Both Applicants and Kobayashi et al. used an alkaline solution and pectate lyase to digest cellulosic fibers. Similarly to the above rejection, the claim language does not distinguish Applicants' invention over the cited art, and the specification does not disclose any unclaimed distinctions. Therefore, the rejection of record is maintained.

Regarding the obviousness rejections of claims 1-11 (obvious over Andersen et al. (US 6,284,524) in view of Thornton and Enzyme Nomenclature), Applicants assert that the claimed invention is not obvious because Thornton uses a different enzyme than Applicants and because each enzyme yields a different product when pectin is digested. Applicants assert that, therefore, the two methods are not the same.

In reply, the rejection is not that the two enzymes or the two digestion products of pectin are the same. The rejection is that it would have been obvious to substitute the enzyme of Andersen et al., pectate lyase, for the enzyme of Thornton, pectinase, in the method of Thornton, because each enzyme has been shown to digest polygalacturonic acid.

As previously discussed, Thornton teaches that the alkaline bleaching step in the paper making process produces polygalacturonic acid from the pectin in wood pulp (pectin being a polymer of  $\alpha$ -D-galacturonic acid units), which is known in that industry as anionic trash. A method of decreasing the amount of polygalacturonic acid, by digesting it with an enzyme to produce galacturonic acid, is a method of decreasing the amount of anionic trash. Thornton teaches that pectinase is effective for this purpose when it is added to crude TMP, which is a mixture containing many molecules including polygalacturonic acid, because the enzyme digests the polygalacturonic acid, i.e., anionic polymers of galacturonic acid.

As also previously discussed, Andersen et al. teach that TMP (mechanical paper-making pulp) may be treated with pectate lyase to degrade it (see col. 3, lines 21-30, col. 14, lines 34-39, and claims 4-5) and that other enzymes, such as pectinase, may be combined with pectate lyase in this degradation step (see col. 14, lines 22-25, and col. 16, lines 52-67). When TMP is enzymatically degraded, more galacturonic acid is produced from the polygalacturonic acid break-down product of the pectin, the polygalacturonic acid being produced in the alkaline bleaching step. Pectate lyase digests the polygalacturonic acid (see Enzyme Nomenclature), or anionic trash, thereby reducing the amount of anionic trash and cationic demand.

Because the polygalacturonic acid in the TMP is a substrate for either pectinase or pectate lyase, the prior art teaches one of ordinary skill in the art to use either of these enzymes or both of them together to digest TMP. Thus, one of ordinary skill in the art would be motivated to use pectate lyase to digest TMP because Andersen et al. teach that this enzyme is effective for this purpose. In view of the foregoing, the rejection of record is maintained.

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Regarding the obviousness-type double patenting rejection over U.S. Patent No. 6,284,524 (Andersen et al., "Andersen et al. I"), or claims 20 and 21 of U.S. Patent No. 6,187,580 (Andersen et al., "Andersen et al. II"), or claims 21, 23 and 24 of U.S. Patent No. 6,399,351 (Bjørnvad et al.) in view of Thornton, Applicants have not addressed this rejection, because Applicants have not explained why the instantly claimed method is not an obvious modification of the methods in their three patents. Applicants assert that the instantly claimed method uses a different enzyme than the method of Thornton, but that is not the rejection. Thornton was mentioned as evidence that it was routine in the art of paper making to use an alkaline treatment step before an enzymatic treatment step to start the breakdown of the plant fibers and release the carbohydrate break-down products. Because the rejection was not addressed, it is maintained.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rosanne Kosson whose telephone number is 571-272-2923. The examiner can normally be reached on Monday-Friday, 8:30-6:00, alternate Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapu Achutamurthy can be reached on 571-272-0928. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Rosanne Kosson  
Examiner, Art Unit 1652

rk/2006-10-06



RICHARD HUTSON, PH.D.  
PRIMARY EXAMINER